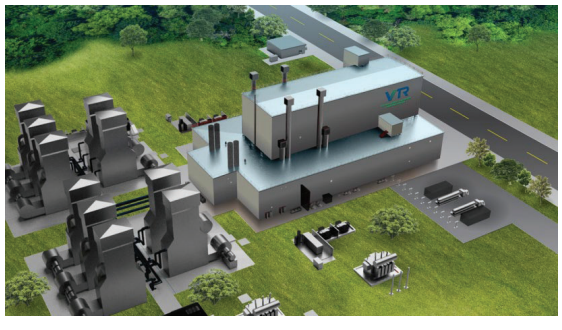
DOE Selects Sodium-Cooled Fast Reactor Design for Versatile Test Reactor in Idaho



The U.S. Department of Energy (DOE) recently issued a record of decision (ROD) to build a sodium-cooled fast test reactor at Idaho National Laboratory (INL).
If appropriated by Congress, the Versatile Test Reactor (VTR) would be the first fast spectrum test reactor to operate in the United States in nearly three decades

The VTR project would help modernize U.S. nuclear energy research and development infrastructure and dramatically accelerate the technology development for current and next-generation reactors.

The U.S. will need both existing and new advanced reactors to meet the nation's goal of net-zero emissions by 2050.

RECORD OF DECISION

DOE issued the ROD to build a high-flux, fast neutron test reactor at INL, along with additional facilities for post-irradiation examination and the management of spent VTR driver fuel. According to the Final VTR Environmental Impact Statement (EIS), building and operating the VTR test facility at the INL site would have minimal impacts to the environment.

DOE established the VTR program in 2018. The team includes experts from 6 national laboratories, 19 universities, and 9 industry partners.
Once built, VTR will generate higher neutron fluxes to test nuclear materials up to 10 times faster than what is currently capable in the United States. This testing capability only exists in Russia today.

VTR experiments would dramatically reduce the time it takes the U.S. to develop nuclear fuels, materials, instrumentation, and sensors for nuclear reactors. This research could help extend lifetime cores, boost fuel performance, and even accelerate fusion materials research.

THE VERSATILE TEST REACTOR

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DOE issued its Final VTR EIS in May 2022 as part of its formal process to manage high-capital construction projects.
The Department has not decided yet whether to establish VTR driver fuel production capabilities for feedstock preparation and fuel fabrication at the INL site or the Savanah River site. Once a preferred option is identified, DOE will announce its preference in a Federal Register notice.
Find more information on the Office of Nuclear Energy and its programs here.